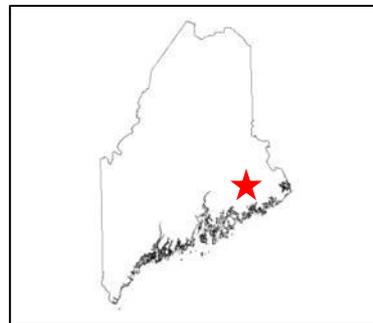


Geologic Site of the Month
November 2015

Gwenyth's Rock, Beddington, Maine



44° 47' 52" N 68° 02' 40" W

Text by
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Introduction

This month's geologic feature is a large boulder in the Town of Beddington. Located in Washington County, Beddington was incorporated in 1833, the 307th town in Maine. This large boulder is named for the granddaughter of the current landowner. It also has been called the Beddington Boulder. The dimensions of Gwenyth's Rock are approximately 80 feet long, 30 feet wide, and 24 feet high. While it is not the largest boulder in Maine, it is comparable to other large glacial boulders, such as Daggetts Rock in Phillips and Bubble Rock on Mt. Desert Island.



Figure 1. Gwenyth's Rock, Beddington, Maine.

Source

At present there has been no known search for Gwenyth's Rock's source. Initial review shows that Gwenyth's Rock type matches the underlain bedrock, Deblois Granite, in the area. This implies that it is not a glacial erratic, a term that means it is a stone or boulder that has been transported by the flow of glaciers but does not have the same geologic composition of the bedrock of the region in which it is found. Actively flowing glaciers will pick up loose stones and boulders and deposit them at other locations, sometimes far from their original source. Further investigation is needed to be sure of this distinction between glacial boulder and glacial erratic. That would entail attempts to find compositionally similar boulders in the same area, using general ice-flow directions (from striations, drumlins, or other ice-flow indicators) and geologic maps to identify potential sources for the rock.



Fracture

Many large boulders like Gwenyth's Rock are often split, possibly by the weight of the rock itself as the glacier moved the large boulder. Fractures in the rock may have formed while it was being moved. Freeze and thaw activity during the late stage of the Ice Age may also have helped to further fracture the boulder. Freeze and thaw activity is the process of water entering fractures in the boulder in the early spring. The water freezes at night and it expands the fracture. This process allows the fractures in the rock to penetrate deeper into the rock, and widens the fracture over many freeze and thaw episodes.



Figure 2. Fracture in Gwenyth's Rock.

Crystals

The boulder is a granite, originally formed from molten magma probably a few miles down within Earth's crust. This is a coarse-grained variety of granite in which it is easy to see the different minerals that compose it. The pen is pointing to a rectangular crystal of the mineral feldspar, the most abundant mineral in the Earth's crust. Note that it has a white rectangular shape around a darker gray center. This rimmed nature is called zoning and develops when the composition of the molten magma in which the feldspar was crystallizing changes as the crystal formed. The different colors of the resulting "zones" reflect slight changes in composition. You can see other rimmed crystals of feldspar, but they are not as sharp as the one near the pen. Green leaf-shaped lichen are growing on the rock and derive their nutrients from it.



Maine Geological Survey

Photo by Thomas K. Weddle

Figure 3. Crystals in Gwenyth's Rock.



Size



Photo by LANDOWNER

Figure 4. Photo of width of boulder.



Photo by Thomas K. Weddle

Figure 5. Photo of height of boulder.

References and Additional Information

Osberg, Philip H., Hussey, Arthur M., II, and Boone, Gary M. (editors), 1985, Bedrock geologic map of Maine: Maine Geological Survey, color map, scale 1:500,000.

